

## KNOWLEDGE MANAGEMENT METHODS AS AN INNOVATIVE DEVELOPMENT FACTOR IN THE KNOWLEDGE TRIANGLE

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*The purpose of the study is to determine the knowledge management methods that can be used in practice and be an innovative development factor in the knowledge triangle.*

*For the achievement of this purpose the following tasks were accomplished.*

**Tasks.** *In the course of a questionnaire survey the basic needs of the learners that cannot be met through usual education were revealed, training programmes were developed; said programmes were implemented on the base of the Stockholm School of Economics (SSE, Riga), Rezekne Higher School (Latvia), and Moscow State University (Russia). The results of training were obtained, processed and analysed. The primary methods were used including a brief description of the study design.*

**Practical Implications.** *For the implementation of the research, an experiment was conducted at different stages in the period of time from 1999 until 2013 inclusively on the base of private organisations, public sector organisations, and higher educational institutions. The first and fourth levels of Kirkpatrick's model were used to analyse the effectiveness of proposed training methods. As the first evaluation level, a questionnaire survey of the individuals who completed said training was conducted. As the fourth evaluation level, assessments of the heads whose subordinates completed said training were used. In this case, the heads gave their evaluation as experts 3-36 months after their subordinates had completed said training. Thus, it is possible to arrive at a conclusion about the effectiveness of the conducted training. The key results showed that 96% of the heads highly evaluated the output of the conducted training and believed that the expenses for conducting of training were completely justified; 91% of the respondents emphasised the possibility of using the obtained skills and abilities for the performance of their work duties. Also, an increase in the speed and accuracy of rational decision-making (73%) and in the volume of memorised information (85%) should be pointed out. The rate of text information processing grew by 70% and in this case the accuracy of perception of informational context remained at the previous level (it did not decrease) at the very least which was noted by 96% of the respondents; 78% of the respondents pointed out that understanding of text information was improved. Therefore, mastery of the techniques of fast memorisation, speed reading and text structuring using logicographic symbols is a popular and applicatory method for personnel training in organisations. Personnel which in the course of training becomes able to process information 2-3 times faster in comparison with the initial stage, gives an organisation a competitive advantage in terms of acquiring explicit knowledge which is created 2-3 times faster than in a usual organisation. Using such methods makes it possible to improve the knowledge management methods in an organisation at the expense of new opportunities for employees, and, thus, acts as an innovative development factor in the knowledge triangle.*

**Originality/value.** *There are few accounts of how knowledge management methods may be used from the point of view of the acceleration of personnel skills in relation to the rate of information processing and its transformation into knowledge, and how these methods can be practised. **Paper type:** Research paper.*

**Keywords:** *knowledge management, knowledge management methods, knowledge triangle.*

### Introduction

In the contemporary knowledge-focused society new trends have appeared in education all over the world showing the world community's readiness to actively contribute to the formation of a global innovative society by developing education, research and innovation which form the Knowledge Triangle. Such approach requires the development of human resources through the development of professional skills, carrying out and support of scientific researches and introduction of innovations into the learning processes. Accessibility and continuity of information are the fundamental characteristics of the new society. Information can become knowledge only when people 'let it pass through them'. Therefore, under the conditions of the accelerated scientific and technical and economic development it is

necessary to increase the capacity of people who participate in creation of new knowledge. Higher schools may take this function upon themselves if they will be able to re-focus their training programmes on the needs of students and graduates. Accessibility and large volume of information have for the first time generated the problem of 'knowledge overload'. In terms of knowledge management, in scientific literature the basic emphasis is put on how to convert informal knowledge to formal knowledge. In this case, not enough attention is paid to the possibilities of people who need to process and pass this formal knowledge through them. This article examines the methods of knowledge management with the help of which it is possible to increase people's capacity to process knowledge and information.

The purpose of this article is to investigate, evaluate and test the knowledge management methods which will contribute to an increase in the capacity of an employee or a learner which can serve as an innovative development factor in the Knowledge Triangle. To achieve this purpose, the experience of different countries is analysed, curricula are developed and tested in practice on the base of different institutions of higher education.

To analyse the data obtained in the course of training as well as the results achieved by the learners, an experiment and recording of results, questionnaires and interviews of the learners were used during training right after the end of training and then 3 months after the end of the same. The results confirmed that the skills obtained are steady in nature and may be used to increase the learners' capacity. In the course of the experiment it was established that the rate of information processing grows 2-3 times in comparison with the initial rate. The accuracy of reproduction of the obtained information grows at least twofold. An important factor is that with an increase in the rate of information processing the degree of understanding of the obtained information also grows.

### Research Topicality

Under the conditions of the knowledge-based economy the question related to the competitive ability of higher education becomes topical. Not only the level of fundamental training and the level of involvement into research work but also the ability of graduates to rapidly and flexibly adapt to the requirements of the labour market, react to the changes is implied here. Ensuring that students and graduates have the skills of fast information processing, increasing the speed of its perception with the retention of or even increase in the level of understanding, is an effective method of reacting to the market demands. Participation of students in innovative processes requires of them the skills of searching for, evaluating, processing and transferring large volumes of information. Such skills may be regarded as a component of the educational process as a result of which contemporary specialists capable of innovative activity and solving non-standard problems will be trained.

The development of such skills ensures that individual needs of training are met taking into account every student's special personality features and interests and will have impact on all elements of the 'Knowledge Triangle', i.e. education, research and innovations.

The development of skills of fast processing of large volumes of information in institutions of higher education will make it possible to create an effect allowing strengthening the degree of development of every element of the 'Knowledge Triangle' a great deal. Such skills will allow adding new content to educational programmes, and specialists trained under these educational programmes will be able to successfully solve problems related to creation of new knowledge for subsequent continuous development of technologies.

### Description of the Issue

The demand for the development, structuring and testing of skills of fast information processing is present in institutions of higher education all over the world. The leading universities

meet the students' needs and search for the contemporary methods which make acceleration of information processing possible.

Cambridge University Students' Union<sup>1</sup> (Great Britain) developed basic recommendations on how to increase the reading rate, pointed out the factors which slow the reading rate down as well as specified the conditions necessary to increase the reading rate. De Montfort University<sup>2</sup> (Great Britain) offers to its students to master the skills of speed reading in order to more effectively use their time during the study of materials for research activities and reading of educational literature.

In 2010, the University of Copenhagen<sup>3</sup> (Denmark) together with the University of Southern Denmark developed a programme for more effective training of freshmen. According to the statistics of the university, freshmen occupy the first place in terms of expulsions due to academic failures and quite often do not have the necessary skills of assimilation of information. 12 training modules were developed to determine and improve the reading rate alongside the quality of understanding of the material read. The training materials are prepared for educational purposes to involve students and increase their interest, and incorporate graphic images and examples of speech. The interest in the intensification of the process of reading is manifested by institutions of higher education in the USA and Canada. Regent University<sup>4</sup> (USA) has developed and placed on its site on-line lessons on speed reading with the aim to increase the reading rate of students when performing daily academic exercises.

Employees of the University of Victoria<sup>5</sup> (Canada) set themselves a task to facilitate the process of learning of the training material by students and developed a list of rules including the most effective reading techniques. These rules include the improvement of concentration while reading, determination of motivations and purposes for reading, the analysis of the reading rate during several days, increase in the reading rate, and the analysis of the mastery of the material. Said rules were developed for independent use by students during their extracurricular activities.

The Lomonosov Moscow State University (the MSU) used programmes on fast memorisation for full-time instruction and trainings of the representatives from the high-potential level managerial staff resources for training within the framework of the federal programme 'Training and Retraining for Managerial Staff Resources (2010-2015)'.

In the EU countries, even more attention is paid to these methods of adult education. Thus, for instance, the British Broadcasting Corporation (BBC) developed programmes on skimming and scanning (looking quickly through) of texts for adults and placed videos on its website. In the spring of 2011, the daily London newspaper Evening Standard began a massive current affairs programme in order to determine

<sup>1</sup> <http://www.cusu.cam.ac.uk/academic/exams/speedreading.html>

<sup>2</sup> [http://search.dmu.ac.uk/search?q=speed+reading&btnG=Search+DMU&entqr=0&ud=1&sort=date%3AD%3AL%3Ad1&output=xml\\_no\\_dtd&oe=UTF-8&ie=UTF-8&client=dmuweb&proxystylesheet=dmuweb&sitete=dmuweb\\_collection&filter=0](http://search.dmu.ac.uk/search?q=speed+reading&btnG=Search+DMU&entqr=0&ud=1&sort=date%3AD%3AL%3Ad1&output=xml_no_dtd&oe=UTF-8&ie=UTF-8&client=dmuweb&proxystylesheet=dmuweb&sitete=dmuweb_collection&filter=0)

<sup>3</sup> [http://socialsciences.ku.dk/students/news\\_students/tutorials/](http://socialsciences.ku.dk/students/news_students/tutorials/)

<sup>4</sup> [http://www.regent.edu/admin/stusrv/student\\_dev/online\\_workshops/speedreading/](http://www.regent.edu/admin/stusrv/student_dev/online_workshops/speedreading/)

<sup>5</sup> <http://www.coun.uvic.ca/learning/reading-skills/speed.html>

the general level of reading in Great Britain and to acquaint people with this growing problem, to obtain the support of population for the sake of improvement of reading skills in Great Britain. The initiative of the newspaper under the title *Get London Reading* had wide resonance and the dispute it caused is still going on in various strata of society.

According to the data published in the newspaper *Evening Standard*, as of 25.01.2011 illiteracy costs the economy of Great Britain approximately 81 trillion of pounds sterling yearly. Whereas, the report published by the World Literacy Foundation<sup>6</sup> on 25 January 2001 revealed that people who do not read fast enough earn less and do not make substantial contribution to the growth of the British economy as well use government grants. The study carried out by the Foundation showed that an adult who reads slowly will earn at least 30% less than those who can skim. According to the experts' opinion, the children of illiterate parents will most probably grow up unable to read.

Consideration of personal motivation and interest of the learners in the achievement of the objectives, in this case – the wish of students to master skills, allows making the process of learning more effective (Jolles, 2005). This approach allows achieving the results that are needed by the learners and at the same time meet the needs of their management (Latif, 2012). A crucial point is also the possibility of using the skills obtained in the process of training for further studies and work (Rowold, J., Kauffeld, S., 2008).

### Novelty

In the contemporary scientific literature the problem of knowledge management is basically considered from the point of view of structuring of informal knowledge and converting it to formal knowledge (Senge, P., 1994), (Zack, 2002), (Waltmann, F., 2012).

The authors find that not enough attention is paid to the study of issues related to the capacity of students and specialists in terms of work with information. Even when information is structured, a question related to an increase in the rate of searching for and evaluation of the necessary information becomes topical (Mitroff, I., I. 2008) since information becomes knowledge only when an individual passes it through him/herself (Tonnessen, 2005), comprehends it and can use it repeatedly (Liyange, 2009).

Every six months the volume of information in the world doubles, the amount of information on the Internet doubles every 18 months (IDC, 2012). According to the forecasts, over the next decade the amount of information in the world will grow by 50 times (the EMC research 'The Expanding Digital Universe: A Forecast of the Worldwide Information Growth through 2010'). For the first time in the history of humanity scientists note the effect of 'knowledge overload' which is especially noticeable in the field of intellectual work (Coates, 2009), since an increase in the rate of information processing makes it possible to increase the rate of appearance of new ideas (Rollag and others, 2005).

This article is dedicated to the research, development and testing of methods increasing the capacity of students and specialists. Novelty consists in the new approach to processing of information, wide testing of these methods on the base of

institutions of higher education in different countries, in the rate of presentation of information at the speed of more than 200 bpm on the metronome.

### Methods

At the initial stage, an experiment was used as a research method. The demands of students of four higher education institutions were identified. Contemporary students are focused on obtaining a result, and contemporary institutions of higher education are forced to search for the ways of meeting the students' demands by the end product; therefore, innovations are searched for in the learning process (Wang, G., G., Wilcox, D., 2006). The initiative to organise training that would make it possible to master the skills of 'how to learn' came from the students which has a strong impact on the effectiveness of learning (Latif, K., F. 2012).

Students of the Stockholm School of Economics (SSE, Riga) selected a course on speed reading since they needed additional knowledge and skills to obtain and process large volumes of text information from printed sources; on the base of the MSU, six groups of learners selected a course on fast memorisation as skills necessary for their studies and work; in Kazan (Tatarstan) and Rezekne (Latvia), the students selected a course on fast memorisation as an orientation course before the beginning of studies.

As a result, educational programmes were developed taking into consideration the specific character of the learners' demands, and these programs were implemented in practice. In the course of training the results achieved by each learner were recorded. With each new task, tests were given before a new theme was taken and after it was covered. The results were then compared. Right after the end of the training a questionnaire survey of all learners was conducted with the aim to evaluate the effectiveness of said training using the first level of Kirkpatrick's model (Kirkpatrick and Kirkpatrick, 2006). The learners filled out structured questionnaires. Repeated questionnaire survey and interview of the learners was conducted three months after the training with the aim to evaluate the effectiveness of the training according to the fourth level of Kirkpatrick's model. The survey was conducted via e-mail, Skype and during personal interviews (McDowall and Saunders, 2010). Semi-structured questionnaires were used which made it possible to evaluate the possibilities of applying the skills acquired (Holden, and others 2006). Part of the answers was obtained in a free form. The questionnaires were then processed and the data was summarised.

### Results

The results of training of students who had taken the Speed Reading Course in SSE Riga showed that the average initial reading rate in a group was 205 words per minute with understanding of 50% (they could answer 3 out of 6 questions asked in relation to the text). As a result of 3-hour lessons conducted during 6 days, the final average reading rate in the same group was 652 words per minute with 100% understanding of the text (they could answer 6 out of 6 questions asked in relation to the text). On the average, the speed grew by 3.18 times.

In the MSU, 6 groups consisting of 20 people each were learning the techniques of fast memorisation. According to the results of training carried out in the MSU, 96% of the

<sup>6</sup> <http://www.thisislondon.co.uk/standard/get-london-reading/article-24030751-cost-of-illiteracy-to-uk-tops-pound-81bn-each-year.do>

learners pointed out that they gained a real practical benefit from the acquired knowledge and 92% noted that they will use the acquired knowledge and skills for further learning. 82% of the learners recommended conducting such training before the beginning of any other training since it gives the skills of how to learn and allows making the process of further training more effective.

According to the results of work in Kazan (the Republic of Tatarstan), the course 'Fast Memorisation of Information', in the opinion of 600 listeners, at that stage was one of the three most useful and demanded courses which were presented in the educational project 'Made in Kazan' at the stage 'Expand Your Horizons – 4'. In the course of training, lessons were conducted for three groups each consisting of 200 people. Due to time limits it was possible to give only several exercises which made it possible to facilitate the process of memorisation of information necessary for studies or work. Despite that, 94% of the listeners could completely restore information that they were offered to memorise using the techniques of fast memorisation.

Training in the Rezekne Higher School (Latvia) was conducted within the framework the project Open Mind together with JSC Swedbank. The initiative of conducting said training came from the teachers and students who wanted to practically test fast memorisation techniques in order to master those of them that would allow memorising large volumes of information needed by the students for their studies.

Within the framework of implementation of that project, training was conducted during one day for a group consisting of more than 100 people. Techniques which could make it possible to memorise large volumes of information as well as to work in the shortage of time were reviewed.

In the course of training it was established that fast memorisation techniques could be also taught to large audiences. However, from the point of view of the authors, the nature of such training is rather formal. Despite the possibility to use general approaches to memorisation of information, the effectiveness of training grows considerably if information that is necessary for each individual is used as examples.

From the authors' point of view, fast memorisation techniques can be taught more effectively in the form trainings rather than lectures. The authors believe that to organise such training taking into consideration every learner's personal special features and interests, it would be more effective to organise training in small groups. In this case it is possible to obtain feedback from every learner and make corrections to the learning process. When training large groups, there is a possibility to let the audience to try using different memorisation techniques and, as a result, every learner chooses the technique that is most suitable for him/her. When training small groups (up to 20 people), there is a possibility to practice all memorisation techniques using different examples and to achieve that the learners use all these techniques. Teaching in groups consisting of up to 20 people was used for corporate training, and the authors have data about training of more than 5,000 people.

The authors believe that the speed reading techniques cannot be presented in the form of a lecture or taught to large audiences. Practicing the speed reading skill requires an individual approach to every learner. In the course of the

lessons it is necessary to correct the learners' behaviour in their work with text information. That is why training is conducted in the groups of 20 people. As a result of such training it is possible to correct every learner and obtain feedback from him/her. During training, the degree of understanding of the text and the quality of the performed exercises may be checked only when reading aloud. After the skill has been practised, the learners continue residence trainings trying to practice the reading skill at the speed of more than 200 bmp on the metronome.

In the course of training it was established that it is impossible to independently practise these skills without the presence of a trainer. Self-learning from books also proved to be ineffective. Before attending the course, 42% of the learners tried to learn independently. They could increase their speed of reading by 15-17% in comparison with the initial speed, but in this case they ceased reading every word, i.e., they started to skip part of information. From the point of view of the authors, such approach is not effective. The authors consider that in the course of the training on speed reading the skill of fast thinking and evaluation of information without losing quality and understanding must be practised.

### Discussion

Changes in the system of education and increased competition among higher education institutions require of them a flexible reaction to the students' demands. The increasing volume of information and accessibility thereof requires of the students the skills of faster processing of information, searching for it, evaluating, structuring, and letting it pass through them for information to become knowledge and for further transfer of information and knowledge. Qualitative education, academic researches, acquired and constantly supplemented professional experience require of students and specialists the skill to process large volumes of information. Purely academic knowledge given in large volumes to students in institutions of higher education automatically remains just information that will not become knowledge if those for whom this knowledge is intended have no skills and abilities to process and retain large volumes of information, especially because under the conditions of today's economy fast deterioration of information is increasingly frequently spoken about. Adding the knowledge management methods to teaching and transfer of information in institutions of higher education using techniques allowing processing large volumes of information and converting it into knowledge by passing it through oneself, we can speak about the knowledge management methods as an innovative development factor in the Knowledge Triangle.

Such knowledge management methods ensure the technology of students' development focused on future, since new professions may appear during studies in an institution of higher education, and both students and future specialists will have to rapidly retrain acquiring new knowledge under the shortage of time. These methods also ensure students with new possibilities in the field of the concept of lifelong learning creating prerequisites for rapid retraining of certified specialists.

The demand for use of the contemporary knowledge management methods including speed reading and fast memorisation techniques has been formulated by students.

Therefore, institutions of higher education can include such training blocks in their curricula. At the same time, training in groups and constant feedback during trainings requires of the teachers very high expenditure of psychic energy.

The data given in this article testify about the need for further researches in terms of speed reading and fast memorisation.

Such disciplines introduced as a required programme in higher education institutions may enhance the competitive advantage of a higher education institution increasing the number of students who are able to master large volumes of information.

Students who can process information 3 times faster than the rest will probably be more competitive specialists in comparison with those who think slowly (under otherwise equal conditions).

### Conclusions

This data prove that the Knowledge Triangle is in need of the introduction of innovative factors focused on information processing. The initiative for the search for such methods comes both from students and from higher education institutions.

The course on speed reading and fast memorisation is demanded and, as the researches showed, it can be implemented on the base of different higher education institutions.

The course on speed reading gives a possibility during 6 days of 3-hour long lessons to increase the reading rate by 2-3 times; whereas, when training people connected with intellectual work and students – by more than 3 times in which case the level of understanding of text information is not decreased but frequently is increased. Lessons on fast memorisation of information make it possible to retain large volumes of knowledge necessary for teaching students and young specialists.

Speed reading and fast memorisation are the skills demanded among students and young specialists.

Introduction of fast memorisation and speed reading techniques into the curricula of higher education institutions does not deny any traditions of academic teaching and does not lead to the liquidation of any higher education subjects. Trainings are an essential addition to the general higher education programmes and meet the requirements of the contemporary society.

Conducting of trainings requires of higher education institutions a more elastic approach to the organisation of the educational process. An increase in the volume of information in the world that produces the effect of knowledge overload requires of higher education institutions to educate students so that they could pass large volumes of information through themselves converting them into knowledge. It will also make it possible to create new ideas and introduce innovations.

### Proposals

From the point of view of the authors, it is necessary to conduct a serious research on the base of higher education institutions and to compare education, progress and further career of those students who were taught speed reading and fast memorisation techniques and those who did not pass such training.

It is possible to trace the impact of introducing a compulsory subject 'How to Learn' during the first year of studies including the techniques of fast memorisation and speed reading on the competitiveness of institutions of higher education.

Further researches may be focused on the evaluation of the average income level of those who passed such training and those who were not trained. Also, it is possible to conduct researches on how such training influences job placement and career growth.

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